

REMARKS

This timely responds the Office Action mailed January 29, 2004. Claims 1-21 are active in this application, of which claims 1, 6 and 17 are independent. The Office Action indicates that claims 11, 12, 14 and 15 are objected to but allowable if presented in independent form.

Based on the following Remarks, Applicant respectfully requests that the Examiner reconsider the outstanding objections and rejections and they be withdrawn.

Rejections Under 35 U.S.C. §103

In the Office Action, claims 1, 4-6, 9, 10, 17 and 18 stand rejected under 35 U.S.C. §103(a) for being unpatentable over U. S. Patent No. 5,790,092 issued to Moriyama ("Moriyama") in view of U. S. Patent No. 5,604,358 issued to Kim ("Kim"). This rejection is respectfully traversed.

In the Office Action, the Examiner admitted "Moriyama does not explicitly teach that the distance between a first data line for a first pixel electrode is greater than the distance between a second data line for the second pixel". This is not the invention recited in the claims.

Independent claim 1 recites:

“...
wherein the polarity of the data voltage applied to the pixels in the same pixel group is the same, and
a first distance between a first data line for a first pixel electrode of a first pixel group and a second pixel electrode of a second pixel group adjacent to the first pixel electrode is greater than a second distance between a second data line for the second pixel electrode and a third pixel electrode of the second pixel group adjoining the second data line”.

To help understand the claims, this limitation can be reduced to “a first distance between *a first data line ... and a second pixel electrode ...* is greater than a second distance between *a second data line ... and a third pixel electrode*”. The claimed invention is not directed to comparing the distances between the data lines.

As explained in detail in our previous response filed on August 27, 2003, an example of these claimed feature is shown in Fig. 10 of the present application. Fig. 10 shows four pixel electrodes. The left three pixel electrodes are labeled “R”, “G” and “B”. Also, they are indicated with “+”. This explains that these three pixel electrodes are “in the same pixel group” and “the polarity of the data voltage applied to” these pixels “is the same” (i.e., (+) polarity). The data lines D1, D2 and D3 are provided corresponding to these three pixel electrodes, respectively.

As the Examiner can see, there is one more pixel electrode on the right side. That pixel electrode is labeled “R” and “-”. This means that the pixel electrode belongs to a different pixel group and has a different polarity (i.e., (-) polarity). The data line D4 is provide to this pixel electrode.

As the Examiner can see, there are two different distances labeled “d1” and “d2”. The distance “d1” is *a distance between the pixel electrode labeled “R” (far left) and the data line D2* for the pixel electrode labeled “G”. Both the pixel electrodes labeled “R” and “G” are in the same pixel group and have the same (+) polarity , as explained above.

The distance “d2” is a distance between *the pixel electrode “B” and the data line D4* for the pixel labeled “R” (far right). The pixel electrode labeled “B” and the pixel electrode labeled “R” are not in the same group and have different polarities. The pixel electrode labeled “B” has the (+) polarity and the pixel electrode labeled “R” has the (-) polarity. Fig. 10 shows *the distance D2 is greater than D1*.

Regarding these claimed features, the Examiner stated "Kim teaches a device of thin film liquid crystal display wherein ... a plurality of data lines 13 are formed at right angle to the gate line 12 ... second data lines 14 are formed spaced a certain distance to the first data lines 13 so as to be 1:1 matched with the first data lines, a plurality of third data lines 16 formed above the second data lines 14 connecting between the second data lines ..." (Office Action, pages 2-3).

This assertion is respectfully disagreed because Kim is very distant from the claimed invention. As the Examiner agreed, Kim is directed to forming a data line with three parts. There is nothing new about the first data line 13 which is basically a drain electrode connected to a pixel electrode 17, and the second data line 14, which is basically a data line extending vertically. The unique part is that the second data line is formed on the same plane with the gate line 12 and disconnected at the points where the gate lines 12 and the second data lines 14 would have met. Since the second data lines 14 are disconnected, the third data line is formed to interconnect the disconnected portions of the second data lines 14.

Kim has nothing to do with dividing the pixel electrodes into a plurality of pixel groups, wherein the pixel electrodes in the same pixel group having the same polarity. Also, it has nothing to do with the distances between the pixel electrodes and the data lines. Thus, it would not be possible for Kim to disclose or even suggest two different distances, as recited in claim 1. Also, in Kim, the first, second and third data lines are provided to each pixel and they have nothing to do with the first, second and third data lines of the claimed invention, which are provided to the different pixel electrodes of the different pixel groups.

It is respectfully submitted that Moriyama and Kim fail to disclose or suggest the claimed feature of "a first distance ... is greater than a second distance". Thus, it is submitted that claim 1

is patentable over the cited references. Claims 4 and 5 that are dependent from claim 1 would be also patentable at least for the same reason.

Similarly, independent claim 6 recites “the plurality of pixels being divided into a plurality of pixel groups, each pixel group comprising two or more pixels, each pixel including a pixel electrode” and “*a first distance* between a first data line for a first pixel electrode of a first pixel group and a second pixel electrode of a second pixel group adjacent to the first pixel electrode *is greater than a second distance* between a second data line for the second pixel electrode and a third pixel electrode of the second pixel group adjoining the second data line”. Thus, it is submitted that claim 6 is patentable over the cited references. Claims 9 and 10 that are dependent from claim 6 would be also patentable at least for the same reason.

Also, independent claim 17 recites “*a first distance* between a first data line for a first pixel electrode of a first pixel group and a second pixel electrode of a second pixel group adjacent to the first pixel electrode *is greater than a second distance* between a second data line for the second pixel electrode and a third pixel electrode of the second pixel group adjoining the second data line”. Thus, it is submitted that claim 17 is patentable over the cited references. Claim 18 that is dependent from claim 17 would be also patentable at least for the same reason.

Accordingly, Applicants respectfully request that the rejection over claims 1, 4-6, 9, 10, 17 and 18 be withdrawn.

Claims 2, 3, 7, 8, 13, 16 and 19-21 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Moriyama in view of U. S. Patent No. 5,790,092 issued to Hashimoto, et al. (“Hashimoto”), and further in view of Kim. This rejection is respectfully traversed.

Claims 2, 3, 7, 8, 13, 16 and 19-21 are dependent from independent claims 1, 6 and 17. As previously explained, independent claims 1, 6 and 17 are patentable over Moriyama and Kim.

For example, Moriyama and Kim fail to disclose or suggest the claimed feature of “the first distance ... is greater than the second distance ...”, as recited in claims 1, 6 and 17.

Regarding this missing claimed feature, the Examiner admitted “Neither Moriyama nor Hashimoto explicitly teaches that the distance between a first data line for a first pixel electrode is greater than the distance between a second data line for the second pixel ...” (Office Action, page 5). As previously mentioned, this is not what independent claims 1, 6 and 17 are defining as the invention. The claimed invention is directed to “a first distance between *a first data line* ... and *a second pixel electrode* ... is greater than a second distance between *a second data line* ... and *a third pixel electrode*”. Hashimoto fails to disclose or suggest this claimed feature.


Since Hashimoto fails to cure the deficiency from Moriyama and Kim, it is submitted that independent claims 1, 6 and 17 are patentable over Moriyama, Hashimoto and Kim. Claims 2, 3, 7, 8, 13, 16 and 19-21 that are dependent from claims 1, 6 and 17 would be also patentable at least for the same reason.

CONCLUSION

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. Applicant believes that a full and complete response has been made to the outstanding Office Action and, as such, claims 1-21 are in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Request is respectfully requested.

Respectfully submitted,



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